ET Manager Products Specification Guide

4 Easy Steps

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Rain Bird ET Manager Products Specification Guide

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OVERVIEW

Rain Bird® ET Managers measure evaporation and rainfall to automatically control watering. Landscapes are healthy because they are watered right and water resources are used efficiently. As the most accurate product of its' kind, ET Managers utilize real-time, hourly weather information, gathered from local precision ET weather stations. ET Managers receive a wireless signal with weather information which is broadcast throughout a community, eliminating the need to purchase or maintain on-site ET weather stations. With this information, ET Managers can automatically control watering.

There are two ET Manager models:

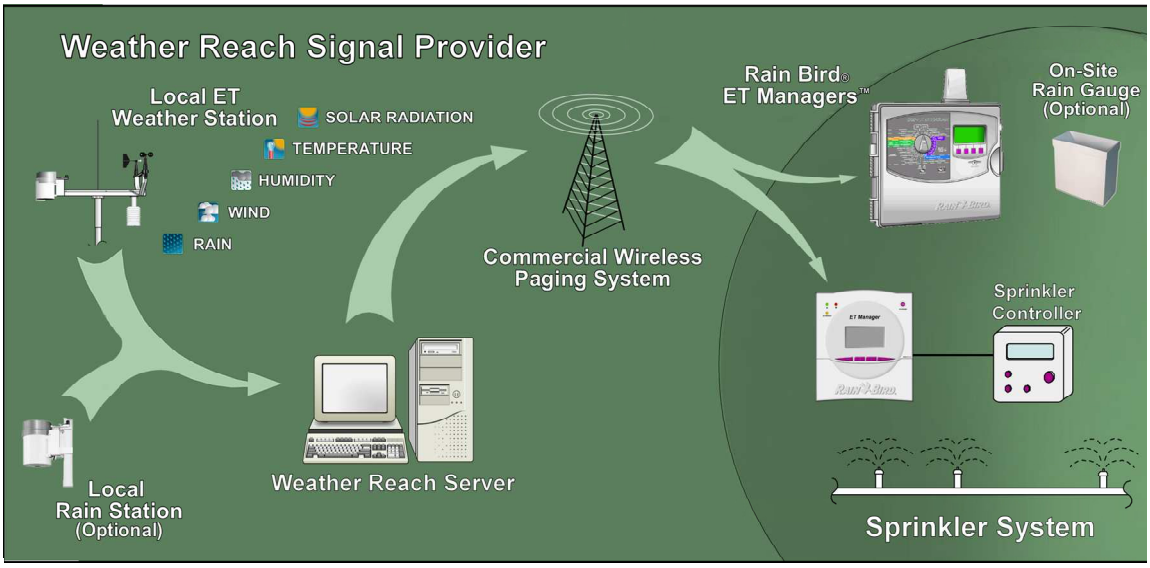
- ET Manager Cartridge (ETM-LXM) - Integrated with the Rain Bird ESP-LX Modular Controller to automate water management.
- ET Manager (ETMi) – Adapts to any standard controller to automate water management by interrupting the common to allow watering only when needed.

In addition to automatically adjusting water schedules, ET Managers can interrupt watering using weather interrupts, for example high winds or freezing conditions.

ET Managers are the new standard in automated water management providing:

- Accurate calculation of ET, based on ASCE standards.
    - Hourly solar radiation, temperature, wind, and humidity measurements.
- Accurate measurement of rainfall.
- Irrigation control based on ET, rain and Managed Allowed Depletion to maintain the optimum soil moisture balance.

The return on investment for ET Manager products water savings is typically between 30-50%. Labor savings are also significant for large landscapes utilizing management companies, especially when crews have to drive from site to site adjusting controllers with changing weather. Rain Bird ET Managers are cost effective, convenient and produce sustainable results. Every user can achieve significant water savings and enjoy a beautiful landscape. The ET Manager is good for the environment and the bottom line.



4 EASY STEPS - for specifying an ET Manager

Step 1 – Products and Accessories

There are two product choices in the ET Manager family:

- **The ET Manager Cartridge for the ESP-LX Modular controller (model ETM-LXM)**. This powerful tool integrates with the ESP-LX Modular controller making it an ideal choice for new installations.
- **The ET Manager (model ETMi)**. This model works great if you need to automate water management for any standard existing controller.

Step 2 – Select the ET source

The ET Manager can use one of two different ET sources:

- Real-time weather.
- Historical ET.

For best results the ET Manager needs real-time weather from the Weather Reach Signal. There are many existing Signal Providers across the country. To check for Weather Reach Signal Service in your area go to www.rainbird.com/wrsp. Some offer the signal as a public service while others provide the signal with an annual subscription. If service is not available, there are several options for new signal service.

If service is not available or you are waiting for signal service, the ET Manager will operate effectively on Historical ET. Performance is enhanced with an on-site rain gauge.

Step 3 – Select the Rain source

The ET Manager uses a rain measurement as part of the process to determine watering needs. The ET Manager can use one of three different rain sources:

- **ET Weather Station Signal**. Rainfall measurements at the regional ET Weather Station are included with the weather signal.
- **On-site Tipping Rain Gauge (model ETM-RG)**. Provides a more localized measurement, wired to the ET Manager.
- **Rain Station**. The Signal Provider can access a Rain Station and broadcast the rainfall amount. Installing a Rain Station allows multiple ET Managers access to a localized measurement from a single rain gauge.

Step 4 – Determine settings

Site specific settings to be programmed in the ET Manager are grouped into two areas:

- **Signal Settings**. These settings are entered so the ET Manager can receive the weather data. This includes: Weather Reach Signal Provider Code, Weather Region, Rain Source, Elevation, and Historical ET (entered only as a back up in the event the signal is not available).
- **Schedule Settings**. These settings relate to the irrigation schedule. This includes: Available Water Days, Cycle Start Times, Valve Run Times, Irrigation Amount, and Landscape Adjustment %.

4 Step Guide: Step 1 - Products and Accessories: Select an ET Manager

Info:

There are two ET Manager models: The ET Manager Cartridge is integrated into the Rain Bird ESP-LX Modular Controller and is ideal for new construction or controller replacement/upgrade. The ET Manager - model ETMi works with any standard sprinkler controller and is ideal for retrofit projects. Both products automate water management based on real-time weather conditions.

Options

☐ **ET Manager Cartridge**

The ET Manager Cartridge brings weather-based water management to the ESP-LX Modular controller. The Cartridge is installed in the controller's communication bay leaving all four module positions available for station modules.

Model No: ETM-LXM
Description: ET Manager Cartridge for the ESP-LX Modular Controller

Resource Documents

Technical Specifications:
ET Manager Cartridge 15

Construction Document Resources:
Specifications:
ET Manager Cartridge 26
Details:
ESP-LX Modular w/ ET Manager Cartridge 29
ESP-LX Modular Pedestal w/ ET Manager Cartridge 30

☐ **ET Manager**

The ET Manager automates the irrigation schedule for any standard controller.

Model No: ETMi
Description: ET Manager (indoor)

Resource Documents

Technical Specifications:
ET Manager 17

Construction Document Resources:
Specifications:
ET Manager 26
Details:
ET Manager 32

4 Step Guide: Step 1 Cont. - Products and Accessories: Optional Accessories

Info:
Various accessories may be needed depending on where the ET Manager will be located. Select any accessories needed for your project below:

Options

ET Manager Cartridge Accessories

☐ **ET Manager Receiver Remote Mounting Kit**
Some locations may have unavoidable features that could interfere with radio signal reception. The ET Manager Receiver can be mounted remotely to improve signal reception.

Model No: ETM-RMK
Description: ET Manager Receiver Remote Mounting Kit

Resource Documents
Technical Specifications:
ET Manager Receiver Remote Mounting Kit 21

Construction Document Resources:
Specifications:
ET Manager Receiver Remote Mounting Kit 26
Details:
ET Manager Receiver Remote Mounting Kit. 35

ET Manager Accessories

☐ **ET Manager Outdoor Enclosure**
The ETMi is not rated for outdoor installation. If the ETMi is going to be mounted outdoors, an outdoor enclosure is necessary.

Model No: ETMi-OE
Description: ETMi Outdoor Enclosure

Resource Documents
Technical Specifications:
Rain Bird ET Manager Outdoor Enclosure 20

Construction Document Resources:
Specifications:
ET Manager 26
Details:
ET Manager Outdoor Enclosure 34

☐ **ET Manager External Antenna**
Some locations may have unavoidable features that could interfere with radio signal reception. An external antenna can be mounted remotely to improve signal reception.

Model No: ETM-ANT
Description: External Antenna

Resource Documents
Technical Specifications:
Rain Bird ET Manager External Antenna 22

Construction Document Resources:
Specifications:
ET Manager External Antenna 26
Details:
ET Manager External Antenna 36

4 Step Guide: Step 2 - Select the ET Source

Info:

ET Managers are capable of using one of two ET sources. The Weather Reach Signal updates the ET Managers with the latest weather information. This signal is provided by various Weather Reach Signal Providers throughout the country. Where the signal is not available, ET Manager products can use Historical ET as a source for ET.

Options

☐ **Existing Weather Reach Signal Service**

To check for Weather Reach Signal Service in your area go to www.rainbird.com/wrsp. If there is not a signal available select "Establish New Weather Reach Signal Service" or "Historical ET" below.

Resource Documents
ET Manager System Software:
ET Manager Scheduler 13

☐ **Establish New Weather Reach Signal Service**

Helpful Hint
To set up Weather Reach Signal Service, call the Rain Bird ET Manager Hotline:
1-877-351-6588 select option 1.

Resource Documents
Application Notes:
New Weather Reach Signal Service .. 38

☐ **Historical ET**

The ET Manager can utilize historical ET when the Weather Reach Signal is not available. When using this option we recommend using an on-site Rain Gauge.

Resource Documents
ET Manager System Software:
ET Manager Scheduler 13

4 Step Guide: Step 3 - Select the Rain Source

Info:

Measuring rainfall is just as important as measuring ET. Automated landscape water management with the ET Manager uses both ET and Rainfall measurements to assure water is used efficiently and landscapes get the right amount. ET Managers utilize one of three rain sources. A rain measurement is included in the Weather Reach Signal, rain can be measured on-site with a tipping bucket rain gauge, or rain information can be received from a local rain station. If using Historical ET as your ET source, an on-site rain gauge is strongly recommended.

Options

☐ **Signal - Weather Station Signal**

Rain information from the selected weather region is broadcast by the Signal Provider and used by the ET Manager.

☐ **Local - On-Site Rain Gauge**

Rain information can be received from a tipping bucket rain gauge directly connected to the ET Manager for more localized accuracy. The Rain Gauge measures 1.0 mm per tip and includes a 30-foot cable.

Model No: ETM-RG
Description: Tipping Bucket Rain Gauge

Resource Documents

Technical Specifications:
ET Manager Tipping Rain Gauge 19

Construction Document Resources:
Specifications:
ET Manager Tipping Rain Gauge 26

Details:
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Tipping Rain Gauge w/ ET Manager Cartridge 31

☐ **Rain Region – Rain Station Signal**

Rain data from a Rain Station is collected and broadcast by the Signal Provider. A Rain Station can be installed to share rain data with an unlimited number of ET Managers in a community.

Resource Documents

Application Notes:
ET Manager Rain Region 40

4 Step Guide: Step 4 - Determine Settings

Info:

ET Managers have several programmable settings to automate water management. These settings can be divided into two different groups: Signal Settings and Schedule Settings.

- Signal Settings are used to enable the device to receive the weather information.
- Schedule Settings utilize information such as soil type, root depth, precipitation rate, slope, and microclimate to create an ideal schedule for each site.

Determining settings is made simple with the ET Manager Scheduler software application.

Signal Settings

The Weather Reach Signal Provider Information Sheet provides all the key information for Signal Settings. Weather Reach Signal Provider Information Sheets can be obtained at www.rainbird.com/wrsp. Select the state from the map then select the desired Signal Provider. Once you have selected the Provider you can download the Signal Provider Information Sheet. The document includes:

Resource Documents

ET Manager System Software:

ET Manager Scheduler 13
ET Manager Programming Software .. 13

Signal Provider Code

The code consists of 10 numbers labeled A through J.

Weather Region

Select a weather region that most closely matches conditions at the location of the ET Manager. The Weather Region number is located next to the weather station listed on the Signal Provider Information Sheet.

Rain Source

Refer to Step 3 on pg. 8.

Elevation

ET Managers use elevation to help calculate ET. The weather station elevation is provided as a reference. ET Manager location elevation must be programmed to calculate ET.

Historical ET

An ET Manager uses average daily ET for each month as a back up to real-time ET. The Average Daily Historical ET values are provided as a reference.

4 Step Guide: Step 4 Cont. - Determine Settings

Schedule Settings

Resource Documents

ET Manager System Software:

ET Manager Scheduler 13

Additional Resources:

ET Manager Installation and Operating Manual

ETM-LXM Installation and Operating Manual

Available Water Days

Available water days are programmed in the controller but the ET Manager will determine the best day to water. Ideally Available Water Days are set to "all" or everyday. When available water days are limited because of scheduled maintenance, facility use, or local watering restrictions, the ET Manager will look-ahead on the day prior to an "off" day and determine if watering is needed.

Program Start Times

Program cycle start times should be based on facility use, scheduling requirements and hydraulic capacities of the irrigation system. Multiple cycles are recommended to encourage deeper watering without run-off.

Valve Run Times

Valve run times must be set in the sprinkler controller so the valves will apply the correct amount of water to the landscape. Irrigation application is expressed in inches of water applied by irrigation. The irrigation amount also needs to be programmed.

Irrigation Amount

The Irrigation Amount is how many inches (or mm) of water is applied to your landscape. Once this amount of water evaporates from the landscape the ET Manager will allow watering. The optimum Irrigation amount is primarily based on soil type and rooting depth.

Landscape Adjustment Percentage

The Landscape Adjustment Percentage (LA %) is used to adjust evapotranspiration rates for site-specific landscape needs. The formula is simple, ETo x LA% = ETL. This value is deducted from the Moisture Balance.

Advanced Settings

Some site applications may require the use of other available advanced settings. See the Users Guide for additional options.

RESOURCE DOCUMENTS

MODEL NUMBERS AND DESCRIPTIONS

Model No.	Description
ET Managers	
ETM-LXM	ET Manager Cartridge for the ESP-LX Modular Controller
ETMi	ET Manager Receiver
Accessories	
ETM-RMK	ET Manager Receiver Remote Mounting Kit
ETMi-ANT	External Antenna
ETMI-OE	ETMi Outdoor Enclosure
ETM-RG	Tipping Bucket Rain Gauge
ETMi-TRAN	ETMi AC Transformer
Software	
ETM-PS	ETM Programming Software
ETM-WRSS	Weather Reach Server Software

ET MANAGER SYSTEM SOFTWARE INFORMATION

ET Manager Resource CD

Included with each ET Manager is an ET Manager Resource CD. This CD contains the ET Manager Scheduler and three product tutorials which are short video/audio presentations that explain the ET Manager system. Also included are PDF files of the ET Manager Installation and Operation Manual, ET Manager Scheduler operation guide, installation poster, and overview card. Also available on the CD is the ETMi Simulator which is a program that looks and functions like an ET Manager which allows a virtual tour of the ET Manager screens and settings.

ET Manager Scheduler

Included with each ET Manager, the ET Manager Scheduler was designed to make programming the ET Manager a simple step-by-step process. Throughout the software are handy calculators to help determine the ideal settings for each landscape based on characteristics such as soil type, rooting depth, precipitation rate, slope, and micro-climate factors. The ET Manager Scheduler creates a printable report showing exactly how to program each setting in the ET Manager as well as the sprinkler controller. It can also be downloaded from www.rainbird.com (see link below).

http://www.rainbird.com/landscape/products/controllers/etmanager.htm

ET Manager Programming Software

The ET Manager Programming Software is a powerful tool for the contractor or distributor who needs to program several ET Managers. This software was designed to go hand in hand with the ET Manager Scheduler software and comes with a USB PC interface connector. The ET Manager can be plugged into the PC and all the settings transferred directly to the ET Manager. Schedules can be saved for future use of commonly used settings or for later retrieval. Also, the Programming Software can upload information from the ET Manager's many logs; this information can be used for evaluation of performance as well as diagnostics tools.

Weather Reach Server Software

A Weather Reach Signal Provider uses the Weather Reach Server Software to acquire weather data and broadcast the Weather Reach Signal to Rain Bird ET Managers. (See pg. 22 for more information.)

TECHNICAL SPECIFICATIONS

ET Manager™ Cartridge

For the ESP-LX Modular Controller

The Rain Bird ET Manager Cartridge easily upgrades any ESP-LX Modular controller to an ET/Weather based irrigation controller. The ET Manager Cartridge uses the same Weather Reach™ signal as the Rain Bird ET Manager (ETMi). The ET Manager Cartridge saves water by making real-time adjustments to the irrigation schedule based on hourly weather information. Additionally, by eliminating the need to travel to controller sites to make adjustments or programming changes, the ET Manager Cartridge contributes to significant labor savings.

Applications

The ET Manager Cartridge is ideal for high-end residential and light commercial applications. The ET Manager Cartridge is easily installed in any ESP-LX Modular with minimal need for tools or wiring.

Water Saving Benefits

• Water Savings of 20 – 50% over traditional time based irrigation control.
• Rain interrupt to prevent irrigation during rain events
• Wind interrupt prevent overspray during high wind conditions.
• Four separate moisture balances are maintained. One for each program or hydrozone to efficiently water varied plant types (example: turf, shrubs, trees, annuals, etc).

Easy Installation

• ET Manager Cartridge easily mounts in the ESP-LX Modular.
• Antenna mounts on NPS nipple.
• Setup Wizard walks user through all key setup parameters.

Reduced Liability

• Minimum temperature interrupt to prevent irrigation during freezing conditions reducing liabilities associated with walkway icing.

ETM-LXM Features

• Upgrade an ESP-LX Modular Controller ET/Weather based irrigation control.
• Modular ET Manager Cartridge snaps into dedicated bay on back of controller faceplate
• Installs in seconds with no tools
• Ribbon cable connects ETM-LXM cartridge to the controller
• Antenna cable connects with snap in connector.
• Status LEDs show current status of communication
• ETM-LXM kit includes ET Manager Cartridge, receiver antenna and manual

Sensors and Accessories

ET Manager Cartridge incorporates a rain gauge input, for optional local rain fall measurement. Rain Bird offers the **ETM-RG** tipping bucket rain gauge as an accessory to the ET Manager Cartridge. The tipping rain gauge is an ideal complement to the ET Manager Cartridge, this electronic gauge accurately measures rain to 1mm per tip, reducing run-off from over-watering and avoiding landscape damage. The rain gauge is durable, weatherproof, and resists UV and extreme temperatures. Measurements per tip are accurate, with a maximum +/- 2% deviation. Each gauge includes a 30’ cable. Rain Bird offers a remote mounting kit, **ETMRMK**, so that the antenna can be remotely mounted to improve signal reception or remotely locate the antenna to prevent vandalism. The kit contains a 30’ (9,1 m) cable, connector and junction box. The cab le must be installed in conduit for outdoor applications.

ET Manager Programming Software

The Rain Bird ET Manager Programming Software (**ETMPS)** uses your personal computer to simplify ET Manager programming. This application allows the user to transfer ET Manager Scheduler settings directly from the PC to an ET Manage r Cartridge via a USB cable. Additional functions of the ET Manager Programming Software:
• Conveniently program all settings
• Quickly program multiple ET Managers
• Review ET Manager programming history
• Integrate with ET Manager Scheduler application

ET Manager Programming Software (cont.)

• Print a programmed settings report
• Access ET Manager diagnostic tools
• Save commonly used program settings for future use

Weather Reach™ Signal

Weather Reach™ Signal providers are available in the US and Canada. Please see www.Rain-Bird.com/WRSP to find a local signal provider.
For more information contact the ET Manager™ hotline at 1-877-351-6588.

Operating Specifications

• Electrical power is provided by the ESP-LX
Modular
• Operating Temperature Range 5˚F-149˚F
(Radio reception operating temperature: 32˚F - 122˚F)
• Tipping Rain Gauge wire: 18 – 26 awg

Specifications

The ET Manager kit shall consist of a cartridge and a receiver device that receives hourly weather signals and automatically makes adjustments to the ESP-LX Modular controller.
The adjustments to the controller shall be made in such a way to efficiently apply irrigation to meet plant needs based on measured weather conditions.

The ET Manager Cartridge shall be installed in the front panel of the ESP-LX Modular controller. All necessary set-up for receiving the Weather Reach™ signal shall be done through the ESP-LX Modular user interface when the ESP-LX Modular dial is in the "Optional ET Manager/IQ Settings" position.

A dedicated terminal connection shall be provided on the ET Manager Cartridge to allow connection of an optional tipping rain gauge (**ETMRG**) to measure local rain fall. The user can configure this input to accept either 1mm per tip or .005” per tip type devices.

The ET Manager Cartridge will interrupt irrigation if rain, high wind, or freezing conditions are measured. The set point for interrupt may be set by the user through either the programming software or the ESPLX Modular user interface. Rain interrupt will have both an hourly threshold and a 24 hour threshold. The default set points shall be:

• Temperature 32˚F (0˚C)
• Wind 20 MPH (32,1 km/h)
• 1 Hour Rain .20” (5,08 mm)
• 24 Hour Rain 1” (25,4 mm)

The ET Manager Cartridge shall be as manufactured by Rain Bird Corporation, Glendora, California.

ET Manager Cartridge (ETM-LXM) How to Specify/Order

Number of Stations Required:	Specify as:	Number of each component to order:			
		ESPLXM	**ESPLXMSM8**	**ESPLXMSM4**	**ETM-LXM**
8	**ESP8LXMET**	1	0	0	1
12	**ESP12LXMET**	1	0	1	1
16	**ESP16LXMET**	1	1	0	1
20	**ESP20LXMET**	1	1	1	1
24	**ESP24LXMET**	1	2	0	1
28	**ESP28LXMET**	1	2	1	1
32	**ESP32LXMET**	1	3	0	1

Note: Controller and ET Manager Cartridge components shipped separately

ET Manager Cartridge (ETM-LXM) Optional Equipment

ETMRG	Local Rain Gauge
ETMRMK	ET Receiver Remote Mounting Kit
ETMPS	ET Manager Programming Software

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Rain Bird Corporation
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Rain Bird International, Inc.
P.O. Box 37, Glendora, CA, 91740-0037, U.S.A.
Phone: (626) 963-9311 Fax: (626) 852-7343
Technical Service and Support
(800) RAINBIRD (U.S. and Canada only)
Specification Hotline
(800) 458-3005 (U.S. and Canada only)
ET Manager Hotline
(877) 351-6588 (U.S. and Canada only)
www.rainbird.com
The Intelligent Use of Water™ -- Visit www.rainbird.com to learn about our efforts
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TECH SPECS

Rain Bird® ET Manager™ Series

The Rain Bird ET Manager (ETMi) is a control device that enables weather-based management for irrigation controllers. The ET Manager does this by using current weather conditions to calculate evapotranspiration (ET). The Rain Bird
ET Manager uses the ASCE (American Society of Civil Engineers) Certified ET Equation endorsed by the Irrigation Association that recommends the inclusion of all weather parameters to calculate ET. Typically, controllers irrigate on time–based (day, hour, minutes to water) schedules regardless of changing weather and landscape needs, whereas the Rain Bird ET Manager interrupts the controller only allowing it to irrigate when the soil moisture balance reaches user set levels. Managing the soil moisture balance, the ET Manager uses a programmed irrigation amount, and ET minus effective rainfall, to determine when watering is needed. By receiving hourly weather data, the ET Manager can also suspend the controller's watering cycle when wind, freezing or rain conditions exceed user set levels enhancing its ability to save water and reduce runoff. The Rain Bird ET Manager brings weather-based control to virtually any irrigation controller to provide the convenience of automated schedule control while ensuring maximum water savings and helping maintain healthier landscapes.

Features

Universal compatibility
• Compatible with virtually any irrigation controller through the common wire, regardless of the number of stations.
• Provides pulse output of ET to compatible controllers.

Easy to Use
• Large graphical LCD display makes the ET Manager easy to read, program and understand.
• Weather information and graphs are maintained from the last two weeks allowing quick viewing of rain, air temperature, wind speed, relative humidity and ET.
• At-a-glance display shows the current landscape moisture level for valve groups "A" and "B".
• Easy to use intuitive menu allows the user to quickly access programming and system information.
• "A" and "B" indicator lights let the user know whether watering will occur or not.
• An Override button allows the user too quickly override the ET Manager to permit manual watering.

Maximum Flexibility
• Programmable delays for rain, temperature and wind allow irrigation to be interrupted until adverse conditions change.
• Can receive signal to interrupt all irrigation for emergency management or drought restrictions.
• Two independent ET-based irrigation schedules to accommodate differing plant types (ex. turf and shrubs).
• Daily watering window allows non-ET-based controller programs to operate normally.
• Adjusts to any cycle mode (CUSTOM, ODD,
ODD 31st OFF, or EVEN).
• Programmable landscape adjustment values based on plant type used to meet site specific watering needs.
• Compatible with Rain Bird WS Pro Weather Station as well as other weather station networks through custom integration.

Reliable Operation
• Power failure backup: A 9-volt alkaline battery is included to keep current time and date during a power outage.
• UL listed; CUL, FCC approved.
• User programmable 12-month historical ET database for backup in the unlikely event that the weather signal is interrupted.
• A yellow LED indicates "Attention" conditions the user should be aware of.
• Settings can be saved and later recalled for system restoration – "Contractor Default".
• Secure password protected system prevents unauthorized program changes.

Healthy Landscape Through Precision Irrigation
• Hourly weather data adjusts the soil moisture balance used to control the watering frequency to meet the actual water needs of the landscape – never over- or under-water again due to unpredictable weather.
• The programmable irrigation amounts correspond to the irrigation controller settings and are linked to the soil moisture balance to allow watering once soil moisture settings are reached.
• Optional tipping rain gauge can be used onsite to replace rain information from the weather station.
• Programmable effective rain settings, based on soil conditions, automatically limit the amount of rain used in the soil moisture balance.

Save time and money
• Quick and easy installation allows users to realize savings and benefits faster.
• Information log reports the date and time of the last watering, number of times watering occurred and other events to track operation.
• Reduce water costs dramatically through sustained conservation.
• Reduce labor costs – scheduling changes are made automatically based on current weather conditions instead of manual seasonal adjustment.

Dimensions

Width: 5.6 inches (14,2 cm)
Height: 6.5 inches (16,5 cm)
Depth: 2.0 inches (5 cm)
Weight: 15 ounces (435 g)

Models

ETMi: ET Manager Control Device, indoor model only

Operating Specifications

The ET Manager (ETMi) shall have four independent output modes to interface with virtually any irrigation controller.

ET ENABLE
The valve common from the sprinkler controller shall be wired to the common input terminal. The connection shall be to the normally closed contacts. When watering is not needed, the relays shall be opened to interrupt the common circuit for valve groups A and/or B.

ET ENABLE A THEN B
A programming feature that modifies the ET Enable output method to restrict valve group A and B watering to separate days. In the event the irrigation schedule exceeds the watering window for one day, alternating days shall allow watering to be spread over 2 days. Valves connected to valve group A shall water one day, then valve group B waters the next day. All other program features shall be the same.

ET & RAIN PULSE
ET and rain data shall be passed to a compatible host irrigation controller or control system using a “pulse” method. A dry contact switch closure shall represent 0.01" of ET or rain. The relays shall be normally open.

ET PULSE AND WEATHER INTERRUPT
ET data shall be passed to a compatible host irrigation controller or control system using a “pulse” method. A dry contact switch closure shall represent 0.01" of ET. The relays shall be normally open. A second relay shall provide a sensor interrupt to prevent watering if any one of the three weather interrupt conditions occurs: rain, freezing conditions, or high wind. The relay shall be normally closed.

Programmable schedule options
Available watering days can be limited to accommodate site needs. The look-ahead feature may allow watering the day before a nonavailable watering day.
1. ODD day watering (per program)
2. EVEN day watering (per program)
3. CUSTOM (weekly schedule)
4. ODD 31st off (per program)

Electrical Specifications

• Power Supply: 12 to 30 Volts AC or 12 to 35 Volts DC
• Operating Temperature Range: 5°F - 149°F (Radio reception operating temperature: 32°F - 122°F)
• Terminal Wire Gauge: 14 to 26 awg
• Ground Lug Wire Gauge: 10 to 18 awg
• Serial Communication: TTL 1x6 Header
• Optional External Antenna Connection: BNC Female, 930 MHz, 50 ohm
• Rain Gauge Sensor Voltage: 3.3 Volts DC
• Battery Backup: 9-volt alkaline battery included for programming under batter power and maintaining program current time and date during power outages
• Three year warranty

Technical Specifications

The ET Manager (ETMi) shall be a control device for a sprinkler controller, and shall be adaptable to most sprinkler controllers. It shall be programmable to site-specific conditions to manage landscape watering based on hourly weather conditions.

The ET Manager (ETMi) shall be programmable to the required Signal Provider Code in order to receive messages from the Weather Reach™ Signal Provider (WRSP). The user shall be able to enter a weather region code number that corresponds to the desired weather station data source operated by the WRSP.

The ET Manager (ETMi) shall calculate ET values using ASCE Standardized equation based on weather station input including wind speed, temperature, relative humidity, and solar energy. Effective rainfall shall be subtracted from ET to calculate a moisture balance. The ET Manager (ETMi) shall interrupt the 24 VAC common wire suspending irrigation frequency based on user-selectable irrigation amounts.

The ET Manager (ETMi) shall be mounted in close proximity to the irrigation controller; in applications requiring outdoor mounting, the ET Manager shall be mounted in a weatherproof enclosure.

The ET Manager (ETMi) shall operate at 12 to 30 Volts AC or 12 to 35 Volts DC @ 0.22 Amp max and be capable of withstanding a maximum contact load of 4 Amp @ 30 Volts AC maximum.

The ET Manager (ETMi) shall have an integrated override button to permit maintenance and manual watering to occur. The ET Manager (ETMi) shall have a factory supplied 9-volt alkaline battery to maintain clock time and program memory during a power outage.

The ET Manager (ETMi) shall have programmable settings and records shall be stored in non-volatile memory and be able to be recalled. The Rain Bird ET Manager Series shall be sold by Rain Bird Corporation.

Optional Accessories

ETMi-ANT: ETMi Remote Antenna Kit*
ETM-RG: Tipping Rain Gauge
ETM-WRSS: Weather Reach Server Software
ETM-PS: ET Manager Programming Software
ETMi-OE: ETMi Outdoor Enclosure
ETMi-TRAN: 120 Volts AC Plug-in Transformer-635640
** ET Manager has a built in antenna. Locations with a weak paging signal may require an external antenna.*

Rain Bird Corporation
6991 E. Southpoint Road, Tucson, AZ, 85706, U.S.A.
Phone: (520) 741-6100 Fax: (520) 741-6522
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970 W. Sierra Madre Avenue, Azusa, CA, 91702, U.S.A.
Phone: (626) 812-3400 Fax: (626) 812-3411
Rain Bird International, Inc.
P.O. Box 37, Glendora, CA, 91740-0037, U.S.A.
Phone: (626) 963-9311 Fax: (626) 852-7343
Technical Service and Support
(800) RAINBIRD (U.S. and Canada only)
Specification Hotline
(800) 458-3005 (U.S. and Canada only)
ET Manager Hotline
(877) 351-6588 (U.S. and Canada only)
www.rainbird.com
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Rain Bird® ET Manager™ Tipping Rain Gauge (ETM-RG)

The Tipping Rain Gauge is an ideal complement to the ET Manager. Self-emptying and frost-proof, this electronic gauge accurately measures rain to 1mm per tip. From the top of the rain collector, water runs through a funnel into a self-emptying spoon. Once 1mm of water collects the spoon tips and automatically sends a pulse message to the ET Manager.

Electrical Specifications

- The Tipping Rain Gauge must be connected to the ET Manager using the included cable.
- The cable is 20AWG stranded (7x28) ETP high-conductivity copper conductors, PVC insulation, parallel: (1) tinned, (1) bare.
- The length of the cable may be extended up to 500 feet.

Technical Specifications

The Tipping Rain Gauge shall provide a measurement of local rain fall to the Rain Bird ET Manager. It shall provide rain information via a dry contact pulse measuring 1mm of rain per pulse or tip with a maximum +/- 2 percent deviation. It shall be made of durable, weatherproof material resisting UV radiation, frost and extreme temperatures. It shall include a 30-foot cable.

The Tipping Rain Gauge shall be mounted on a level surface in a location where natural rainfall may be caught, not blocked by obstructions, nor in a location where sprinkler water might be collected in addition to rain.

The Tipping Rain Gauge shall be sold by Rain Bird Corporation

Dimensions

3 5/16″ H x 1 15/16″ W x 3 7/8″ D

Model

ETM-RG: Tipping Rain Gauge

Rain Bird® ET Manager™ Outdoor Enclosure (ETMi-OE)

The Outdoor Enclosure is an industrial NEMA 4X enclosure (modified for cable entry) that includes a door gasket, stainless steel hinge and lockable hasp to provide protection in harsh, aggressive environments. Rugged design combines with tough, durable materials, for extreme reliability in rough environments. With mounting plate, 110-volt plug in receptacle and wiring conduits, the Outdoor Enclosure is easy to install.

Electrical Specifications

- 120-volt AC receptacle
- ½" Conduit openings (2)
  - For 110-volt AC power (optional)
  - Wire run to sprinkler controller

Technical Specifications

The ET Manager Outdoor Enclosure (ETMi-OE) shall be a secure case with mounting plate for use with the Rain Bird® ET Manager (ETMi). It shall provide protection for the ET manager against outdoor environmental conditions. It shall have two conduit holes in the bottom of the case, one to accommodate necessary wiring between a sprinkler controller and the ET Manager and another to provide optional 110-volts to the included receptacle.

The Outdoor Enclosure shall be mounted in close proximity to the irrigation controller.

The ET Manager Outdoor Enclosure shall be sold by Rain Bird Corporation.

Dimensions

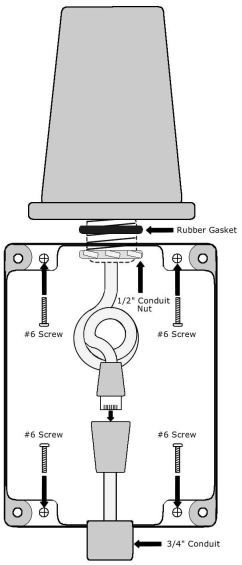
11 5/8″ H x 9 1/2″ W x 4 1/4″ D

Model

ETMi-OE: ETMi Outdoor Enclosure

Rain Bird® ET Manager™ Receiver Remote Mounting Kit (ETM-RMK)

The ET Manager Cartridge for the ESP-LX Modular controller includes an ET Manager Receiver / Antenna. Typically the Receiver is mounted to the top of the controller enclosure. If the controller is mounted in a location with poor radio signal reception, a remote mounting kit can be used to mount the Receiver in a location with better radio reception conditions.



Technical Specifications

The ET Manager Receiver Remote Mounting Kit (ETM-RMK) shall be a weather-tight ABS enclosure that may be mounted to a vertical surface. It shall provide the means to provide a remote mounting location for an ET Manager Receiver / Antenna. The kit shall include #6 Sheet Metal Screw with wall anchors. The enclosure shall include a ¾" conduit opening to allow a ¾" conduit connection between the enclosure and a Rain Bird ESP-LX Modular Controller housing. The kit shall include thirty feet of extension cable with an RJ-45 male and female connector, to be installed in the conduit. The enclosure shall include an opening to install the ET Manager Receiver / Antenna and provide a weather-tight environment for the cable connection.

The ET Manager Receiver Remote Mounting Kit shall be sold by Rain Bird Corporation.

Specifications

- Weather-tight ABS Plastic Enclosure: 4.73" Height x 3.54" Wide x 2.36" Deep w/ ¾" conduit opening.
- 4 - 1¾" #6 Sheet Metal Screw with wall anchors.
- Thirty foot RJ-45 Male x Female connectors.

  Note: Cable not rated for outdoor installation and must be installed in ¾" conduit (not included with kit)

Model

ETM-RMK: ET Manager Receiver Remote Mounting Kit

Rain Bird® ET Manager™ External Antenna (ETMi-ANT)

Some locations have unavoidable features that impede radio reception performance. An external antenna may improve signal reception. The ET Manager External Antenna kit includes an Antenex Phantom 3dB gain antenna complete with mounting bracket and 15 feet of antenna cable.

Electrical Specifications
Maximum Power: 150 watts 100 watts NGP

Technical Specifications
The ET Manager External Antenna Kit shall include a remote 3dB MEG external antenna complete with 15′ antenna cable. The antenna cable connection shall be an N style male connector. Kit shall include self-fusing silicone tape to seal antenna cable connection. The cable end connected to the ET Manager shall be a BNC Male connector.

The ET Manager External Antenna shall be mounted on a flat surface in a location with better radio frequency qualities.

The ET Manager External Antenna shall be sold by Rain Bird Corporation.

Antenna Specifications
- Gain: 3 dB-MEG.
- Frequency Range: 890-960 MHz
- VSWR: <1.8:170 MHz
- Bandwidth: >70 MHz
- Impedance: 50 ohms

Cable Specifications
- RG8X cable – 15 feet
- Center Conductor: Solid
- Outer Jacket: Black
- Dielectric Material: Solid PVC
- Nominal OD: 0.242" Polyethylene
- Nominal Impedance (ohms): 50.0
- Nominal Capacitance (pf/ft): 33.0
- Nominal Velocity of Propagation: 66%
- Shield Cover: 95%
- Attenuation (dB/100ft) 900 MHz: 10.70
- Connectors: "N" Male X BNC Male

Dimensions
Diameter 1 7/16″ Height 2 1/2″

Model
ETMi-ANT: ETMi External Antenna

Rain Bird® ET Manager™ ETMi AC Transformer (ETMi-TRAN)

The 110VAC Transformer powers the ET Manager in situations where it cannot draw electricity from a sprinkler controller's 24VAC power supply.

Technical Specifications
The 110VAC Transformer shall provide no more than 30-volts AC to the ET Manager from a standard 110-volt outlet.

The ET Manager must be mounted within 5′ 6″ of an
outlet.

The 110VAC Transformer shall be sold by Rain Bird
Corporation.

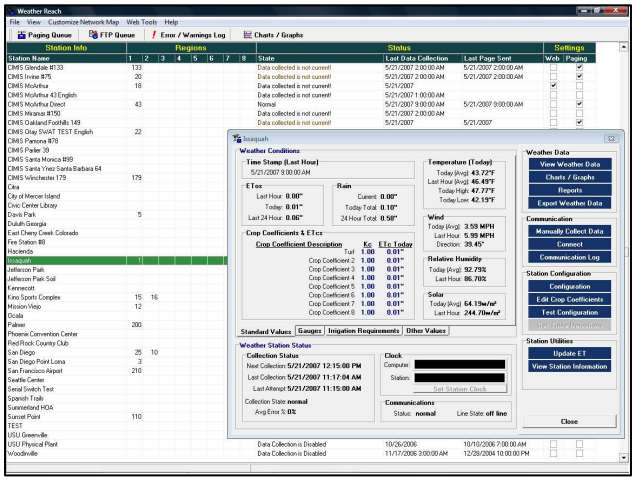
Electrical Specifications

- Input: AC 120V 60Hz 32W
- Output: AC 25.5V 1000mA
- UL Listed 88Y3 E140896
- 20AWG wire 5′ 6″ long

Dimensions
3 1/8″ H x 2 1/4″ W x 1 7/8″ D

Model
ETMi-TRAN; ETMi AC Transformer

Rain Bird® ET Manager™ Weather Reach Server Software (ETM-WRSS)



The Weather Reach Server is a powerful tool for obtaining, storing, and dispensing weather information in a variety of formats. The Weather Reach Server collects data from weather stations, stores the data in a structured format, and makes the data available in several ways. The Weather Reach Server is used to:

- Communicate with Rain Bird and Campbell Scientific weather stations.
- Create and manage a database of collected weather information.
- Generate reports and graphs.
- Automatically update a website with Evapotranspiration (ET) and weather data.
- Export weather and ET data to other programs.
- Use a paging provider to broadcast the Weather Reach Signal to an unlimited number of ET Managers.

Computer Requirements

Personal Computer

Windows NT, 2000, XP, or Vista
USB port for connection to Feedback Receiver
Always on Internet access
Connected to Weather Station(s) using short haul or dial-up modem

Uninterrupted Power Supply

Technical Specifications

The ET Manager Weather Reach Server shall be a system including Weather Reach Server Software, Page Command Software, Feedback Receiver, and USB interface. The Weather Reach Server shall access weather data from compatible weather stations. The weather information collected shall be stored in a database, automatically sent to the paging provider for broadcast to ET Managers, and may be posted on a designated web site. The software shall confirm receipt of data from a Feedback Receiver connected to the Weather Reach Server PC via a USB serial interface. The software shall communicate weather information to an unlimited number of ET Managers via commercial paging. The Weather Reach Server Software shall generate the Weather Reach Signal.

A Weather Reach Signal Provider (WRSP) shall establish an account with a paging company to broadcast the Weather Reach Signal. Irrisoft Inc. shall facilitate the contractual agreement between the WRSP and Metrocall, a division of USA Mobility, a nationwide paging service company. The Metrocall Paging Contract Information sheet shall be included in the Weather Reach Server kit.

The ET Manager Weather Reach Server shall be sold by Rain Bird Corporation.

CONSTRUCTION DOCUMENT RESOURCES

SPECIFICATIONS

An RTF text file of these specifications can be found on the ET Manager Resource CD.

ET Manager Cartridge

The ETM-LXM shall consist of a cartridge and receiver device that receives hourly weather signals and automatically makes adjustments to the ESP-LX Modular controller. The adjustments to the controller shall be made in such a way as to efficiently apply irrigation to meet plant needs based on measured weather conditions.

The ET Manager Cartridge shall be installed in the front panel of the ESP-LX Modular controller becoming an integral part of the controller. Power for the cartridge shall be supplied by the ESP-LX Modular controller. All necessary set-up parameters for receiving the Weather Reach signal shall be done through the ESP-LX Modular user interface when the ESP-LX Modular dial is in the Optional ET Manager / IQ Settings position. The ETM-LXM shall have the ability to maintain four separate moisture balances, one for each of the controller's four programs.

The ETM-LXM controller shall be modular and shall be available in configurations of eight to thirty-two stations in four or eight station increments. The controller shall be capable of operating up to two valves and one master valve simultaneously. The controller shall be able to make ET based adjustments to irrigation run times using historical ET data or from hourly weather signals sent to the ET Cartridge.

The ETM-LXM controller shall be capable of odd / odd31 and even day programming and shall have a calendar day off feature. The controller shall have cycle and soak capabilities and a programmable rain delay of up to fourteen days.

The dedicated terminal connection shall be provided on the ET Manager Cartridge to allow connection of an optional tipping rain gauge (ETM-RG) to measure local rain fall. The user shall be able to configure the rain gauge input to accept either 1mm per tip or .01" per tip.

The ET Manager Cartridge will interrupt irrigation if rain, high wind, or freezing conditions are measured. The set point for interrupt may be set by the user through either the programming software or the ESP-LX Modular user interface. Rain Interrupt shall have both an hourly threshold and a 24 hour threshold. The default set points shall be Temperature 32˚ (0˚ C), Wind 20 MPH (32, 1 km/h), 1 Hour Rain .20" (5,08 mm), 24 Hour Rain 1" (25,4 mm).

The ETM-LXM shall be capable of being programmed manually through the ESP-LX Modular controller or through the ET Manager programming software.

The ETM-LXM shall be as manufactured by Rain Bird Corporation Azusa, CA

ET Manager Receiver Remote Mounting Kit

The ET Manager Receiver Remote Mounting Kit (ETM-RMK) shall be a weather-tight ABS enclosure that may be mounted to a vertical surface. It shall provide the means to provide a remote mounting location for an ET Manager Receiver / Antenna. The kit shall include #6 Sheet Metal Screw with wall anchors. The enclosure shall include a ¾" conduit opening to allow a ¾" conduit connection between the enclosure and a Rain Bird ESP-LX Modular Controller housing. The kit shall include thirty feet of extension cable with an RJ-45 male and female connector, to be installed in the conduit. The enclosure shall include an opening to install the ET Manager Receiver / Antenna and provide a weather-tight environment for the cable connection.

The ET Manager Receiver Remote Mounting Kit shall be sold by Rain Bird Corporation.

ET Manager

The ET Manager (ETMi) shall be a control device for a sprinkler controller, and shall be adaptable to most sprinkler controllers. It shall be programmable to site-specific conditions to manage landscape watering based on hourly weather conditions.

The ET Manager (ETMi) shall be programmable to the required Signal Provider Code in order to receive messages from the Weather Reach™ Signal Provider (WRSP). The user shall be able to enter a weather region code number that corresponds to the desired weather station data source operated by the WRSP.

The ET Manager (ETMi) shall calculate ET values using the ASCE Standardized equation based on weather station input including wind speed, temperature, relative humidity, and solar energy. Effective rainfall shall be subtracted from ET to calculate a soil moisture balance.

The ET Manager (ETMi) shall interrupt the 24 VAC common wire suspending irrigation frequency based on user-selectable irrigation amounts.

The ET Manager (ETMi) shall be mounted in close proximity to the irrigation controller; in applications requiring outdoor mounting, the ET Manager shall be mounted in a weatherproof enclosure.

The ET Manager (ETMi) shall operate at 12 to 30 Volts AC or 12 to 35 Volts DC @ 0.22 Amp max and be capable of withstanding a maximum contact load of 4 Amp @ 30 Volts AC maximum.

The ET Manager (ETMi) shall have an integrated override button to permit maintenance and manual watering to occur.

The ET Manager (ETMi) shall have a factory supplied 9-volt alkaline battery to maintain clock time and program memory during a power outage.

The ET Manager (ETMi) shall have programmable settings and records shall be stored in non-volatile memory and be able to be recalled.

The Rain Bird ET Manager Series shall be sold by Rain Bird Corporation.

ET Manager Tipping Rain Gauge

The Tipping Rain Gauge shall provide a measurement of local rain fall to the Rain Bird ET Manager. It shall provide rain information via a dry contact pulse measuring 1mm of rain per pulse or tip with a maximum +/- 2 percent deviation. It shall be made of durable, weatherproof material resisting UV radiation, frost and extreme temperatures. It shall include a 30-foot cable.

The Tipping Rain Gauge must be mounted on a level surface in a location where natural rainfall may be caught, not blocked by obstructions, nor in a location where sprinkler water might be collected in addition to rain.

The Tipping Rain Gauge shall be sold by Rain Bird Corporation

ET Manager Outdoor Enclosure

The ET Manager Outdoor Enclosure (ETMi-OE) shall be a secure case with mounting plate for use with the Rain Bird ET Manager (ETMi). It shall provide protection for the ET manager against rugged environmental conditions. It shall have two conduit holes in the bottom of the case, one to

accommodate necessary wiring between a sprinkler controller and the ET Manager and another to provide optional 110-volts to the included receptacle.

The Outdoor Enclosure shall be mounted in close proximity to the irrigation controller.

The ET Manager Outdoor Enclosure shall be sold by Rain Bird Corporation.

ET Manager External Antenna

The ET Manager External Antenna Kit shall include a remote 3dB MEG external antenna complete with 15′ antenna cable. The antenna cable connection shall be an N style male connector. The kit shall include self-fusing silicone tape to seal antenna cable connection. The cable end connected to the ET Manager shall be a BNC Male connector.

The ET Manager External Antenna shall be mounted on a flat surface in a location with better radio frequency qualities.

The ET Manager External Antenna shall be sold by Rain Bird Corporation.

110VAC Transformer

The 110VAC Transformer shall provide no more than 30-volts AC to the ET Manager from a standard 110-volt outlet.

The ET Manager must be mounted within 5′ 6″ of an outlet.

The 110VAC Transformer shall be sold by Rain Bird Corporation.

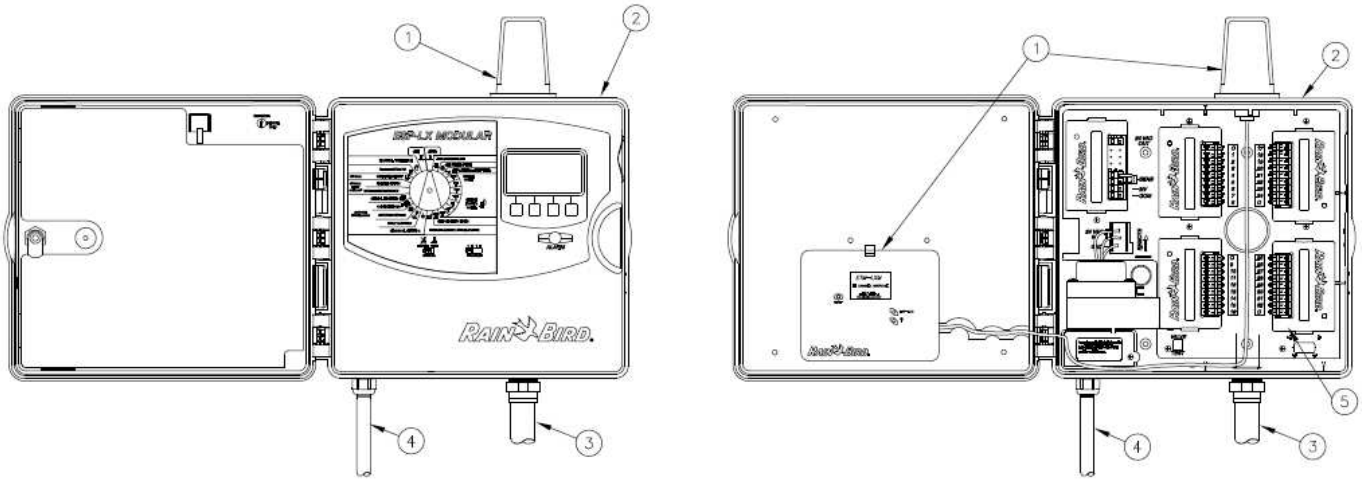
Weather Reach Server Software

The ET Manager Weather Reach Server shall be a system including Weather Reach Server Software, Page Command Software, Feedback Receiver, and USB interface. The Weather Reach Server shall communicate weather information to an unlimited number of ET Managers via commercial paging. The Weather Reach Server Software shall generate the Weather Reach Signal. The software shall access weather data from compatible weather stations. The weather information collected shall be stored in a database, automatically sent to the paging provider for broadcast to ET Managers, and may be posted on a designated web site. The software shall confirm receipt of data from a Feedback Receiver connected to the Weather Reach Server PC via a USB serial interface.

A Weather Reach Signal Provider (WRSP) shall establish an account with a paging company to broadcast the Weather Reach Signal. Irrisoft Inc. shall facilitate the contractual agreement between the WRSP and Metrocall, a division of USA Mobility, a nationwide paging service company. The Metrocall Paging Contract Information sheet shall be included in the Weather Reach Server kit.

The ET Manager Weather Reach Server shall be sold by Rain Bird Corporation.

ESP-LX MODULAR WITH ET MANAGER CARTRIDGE



1. RAIN BIRD ET MANAGER CARTRIDGE
2. MODULAR HYBRID CONTROLLER WITH ET MANAGER CARTRIDGE: RAIN BIRD ESP–LX MODULAR INSIDE WALL MOUNT
3. 1 ½–INCH PVC SCH 40 CONDUIT AND FITTINGS
4. 1–INCH PVC SCH 40 CONDUIT TO POWER SUPPLY
5. BASE MODEL IS 8 STATION. OPTIONAL MODULES FOR 32 STATION CONTROLLER ARE SHOWN

D **ESP-LX Modular** with **ET** Manager Cartridge
N.T.S. 2–02–09

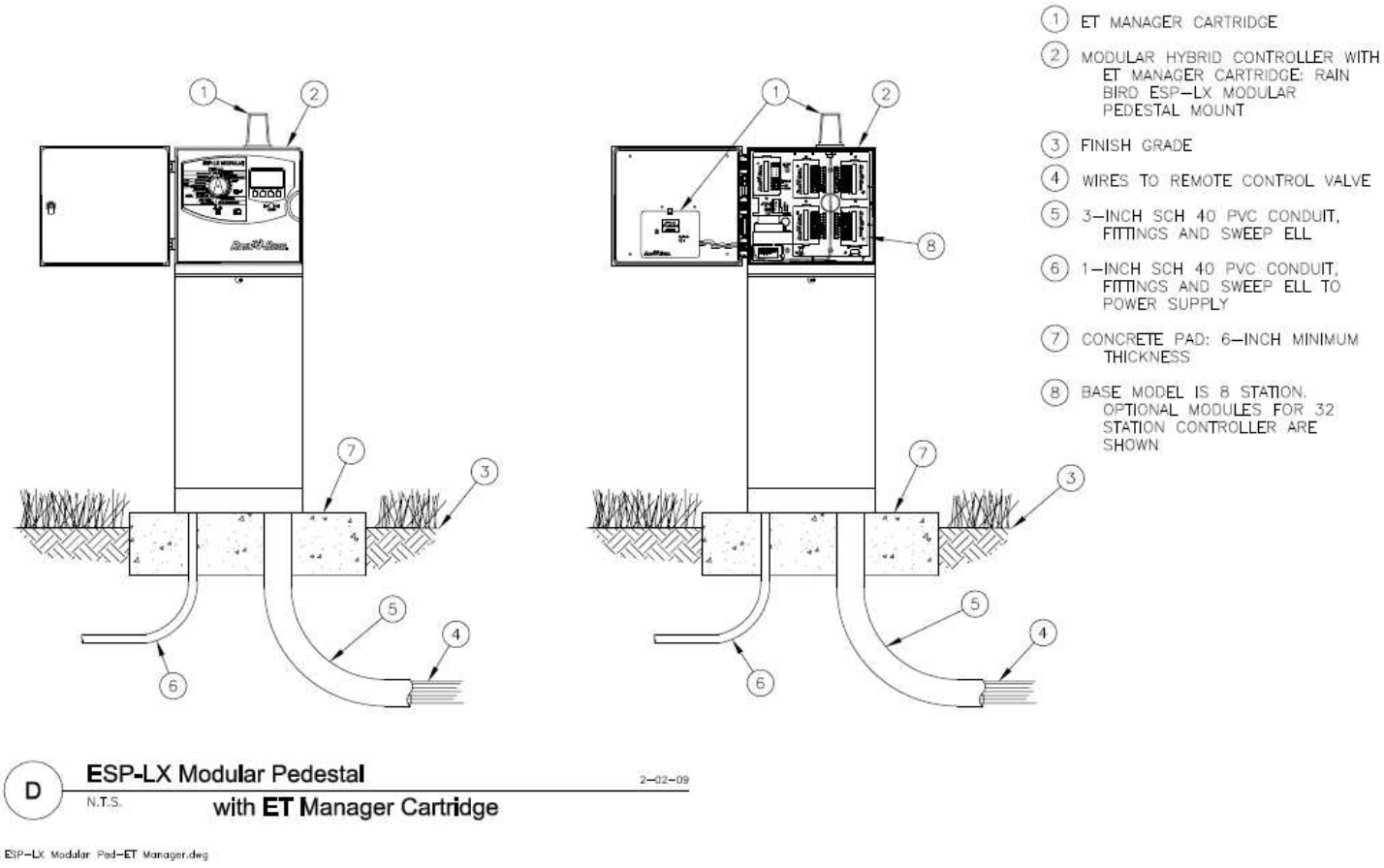
ESP–LX Modular–ET Manager.DWG

File Name:
ESP-LX Modular-ET Manager

Formats:
DWG – PDF – JPG – DXF

Location:
ET Manager Resource CD
http://www.rainbird.com/landscape/products/controllers/ETM-LXM.htm

ESP-LX MODULAR PEDESTAL WITH ET MANAGER CARTRIDGE


1 ET MANAGER CARTRIDGE
2 MODULAR HYBRID CONTROLLER WITH ET MANAGER CARTRIDGE: RAIN BIRD ESP–LX MODULAR PEDESTAL MOUNT
3 FINISH GRADE
4 WIRES TO REMOTE CONTROL VALVE
5 3–INCH SCH 40 PVC CONDUIT, FITTINGS AND SWEEP ELL
6 1–INCH SCH 40 PVC CONDUIT, FITTINGS AND SWEEP ELL TO POWER SUPPLY
7 CONCRETE PAD: 6–INCH MINIMUM THICKNESS
8 BASE MODEL IS 8 STATION. OPTIONAL MODULES FOR 32 STATION CONTROLLER ARE SHOWN
D ESP-LX Modular Pedestal with ET Manager Cartridge
N.T.S.
2–02–09
ESP–LX Modular Ped–ET Manager.dwg

File Name:

ESP-LX Modular Ped - ET Manager

Formats:

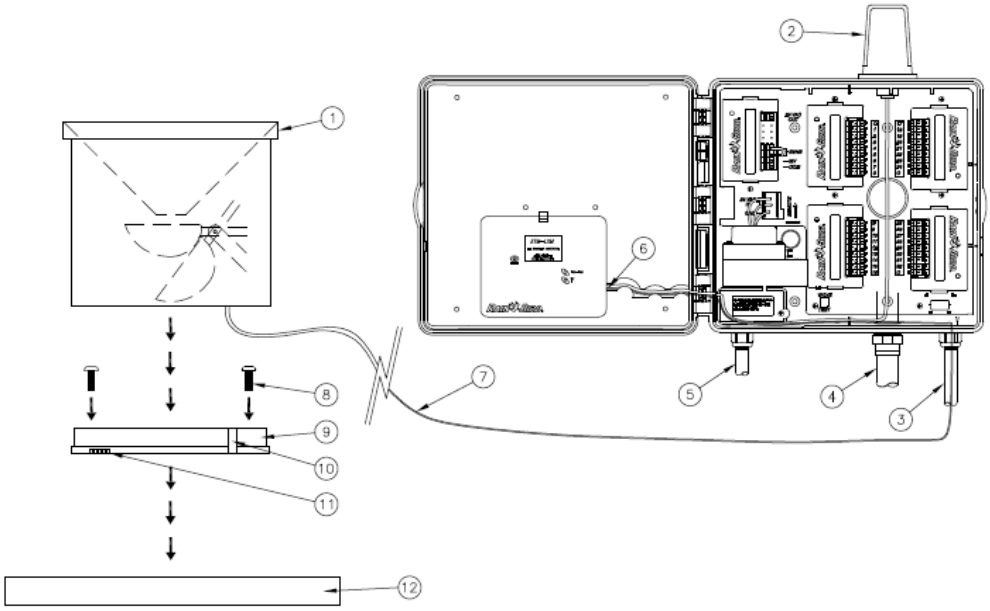
DWG – PDF – JPG – DXF

Location:

ET Manager Resource CD

http://www.rainbird.com/landscape/products/controllers/ETM-LXM.htm

TIPPING RAIN GAUGE WITH ET MANAGER CARTRIDGE



1. RAIN BIRD ET MANAGER TIPPING RAIN GAUGE: RAIN BIRD ETM–RG (DIMENSIONS 3 5/16" H X 1 15/16" W X 3/8" D)
2. RAIN BIRD ESP–LX MODULAR CONTROLLER WITH ET MANAGER CARTRIDGE
3. 1–INCH PVC SCH 40 CONDUIT AND FITTINGS
4. 1 ½–INCH PVC SCH 40 CONDUIT AND FITTINGS
5. 1–INCH PVC SCH 40 CONDUIT TO POWER SUPPLY
6. CONNECT TIPPING RAIN GAUGE TO ET MANAGER CARTRIDGE
7. 30' LENGTH OF WIRE TO TIPPING RAIN GAUGE (INCLUDED). CUT TO REQUIRED LENGTH. IF ADDITIONAL DISTANCE IS REQUIRED THE RAIN GAUGE CAN HAVE A MAXIMUM CABLE RUN OF 500'. USE 18 AWG AS A MINIMUM WIRE SIZE FOR ADDITIONAL CABLE.
8. MOUNTING SCREWS (NOT INCLUDED)
9. MOUNTING PLATE WITH 2 MOUNTING HOLES
10. WIRE NOTCH
11. RAIN DRAINAGE HOLES
12. LEVEL SURFACE OR BRACKET

D Tipping Rain Gauge with ET Manager Cartridge
N.T.S. 2–04–08

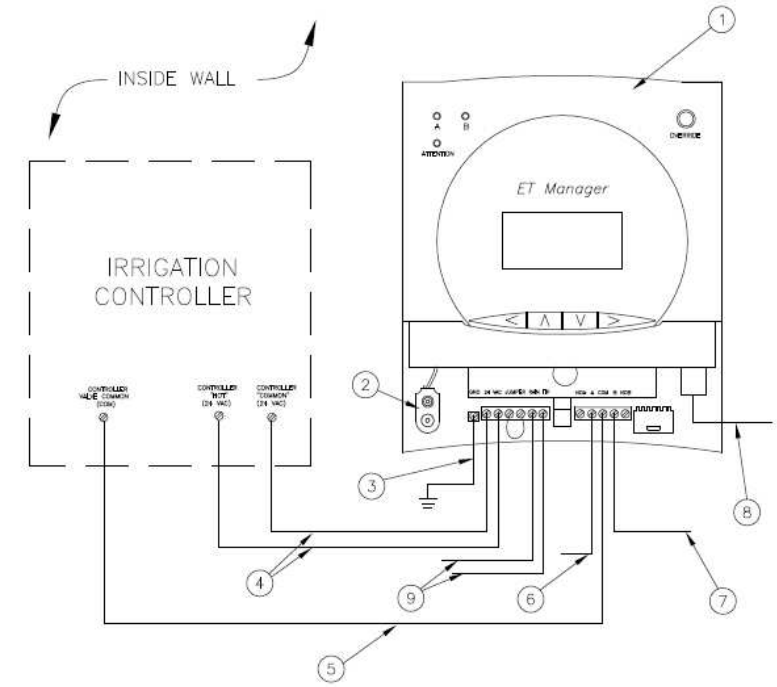
Tipping Rain Gauge–ETM–LXM.dwg

File Name:
Tipping Rain Gauge – ETM-LXM

Formats:
DWG – PDF – JPG – DXF

Location:
ET Manager Resource CD
http://www.rainbird.com/landscape/products/controllers/ETM-LXM.htm

ET MANAGER



1. RAIN BIRD ET MANAGER: RAIN BIRD ETMi, INDOOR WALL MOUNT (DIMENSIONS 5.6" W x 6.5" H x 2.0" D)
2. 9-VOLT ALKALINE BATTERY (INCLUDED)
3. SOLID BARE COPPER WIRE (#10 AWG MIN.) FROM ET MANAGER TO GROUNDING GRID. MAKE WIRE AS SHORT AND STRAIGHT AS POSSIBLE.
4. 24 VAC POWER (HOT AND COMMON WIRES) FROM IRRIGATION CONTROLLER
5. COMMON WIRE TO IRRIGATION CONTROLLER
6. FIELD COMMON TO VALVES THAT ARE ASSIGNED TO VALVE GROUP "A."
7. FIELD COMMON TO VALVES THAT ARE ASSIGNED TO VALVE GROUP "B."
8. CONNECTION TO ANTENNA, ETMi-ANT (OPTIONAL)
9. CONNECTION TO RAIN GAUGE, ETM-RG (OPTIONAL)

NOTE: RAIN BIRD CONTROLLER RECOMMENDED. OTHER COMPATIBLE CONTROLLER MAY BE USED. REQUIRES 12-30 VAC/60 Hz OR 12 TO 35 VDC @0.1 AMP MAX. SEE SPECIFIC CONTROLLER DOCUMENTATION FOR CONTROLLER WIRING DETAILS.

D ET MANAGER 2-02-09
N.T.S.

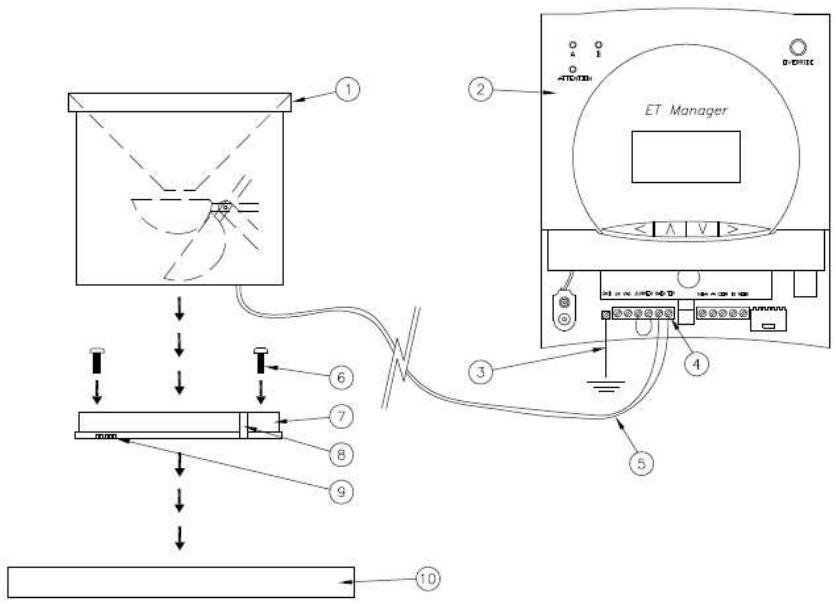
ET Manager.DWG

File Name:
ET Manager

Formats:
DWG – PDF – JPG – DXF

Location:
ET Manager Resource CD
http://www.rainbird.com/landscape/products/controllers/etmanager.htm

Tipping Rain Gauge with ET Manager



1. RAIN BIRD ET MANAGER TIPPING RAIN GAUGE: RAIN BIRD ETM-RG (DIMENSIONS 3 5/16" H X 1 13/16" W X 3/8" D)
2. RAIN BIRD ET MANAGER
3. SOLID BARE COPPER WIRE (#10 AWG MIN.) FROM ET MANAGER TO GROUNDING GRID. MAKE WIRE AS SHORT AND STRAIGHT AS POSSIBLE.
4. RAIN TIP TERMINAL FOR CONNECTION TO TIPPING RAIN GAUGE
5. 30' LENGTH OF WIRE TO TIPPING RAIN GAUGE (INCLUDED). CUT TO REQUIRED LENGTH. IF ADDITIONAL DISTANCE IS REQUIRED THE RAIN GAUGE CAN HAVE A MAXIMUM CABLE RUN OF 500'. USE 18 AWG AS A MINIMUM WIRE SIZE FOR ADDITIONAL CABLE.
6. MOUNTING SCREWS (NOT INCLUDED)
7. MOUNTING PLATE WITH 2 MOUNTING HOLES
8. WIRE NOTCH
9. RAIN DRAINAGE HOLES
10. LEVEL SURFACE OR BRACKET

D Tipping Rain Gauge with ET Manager
N.T.S. 2-04-09

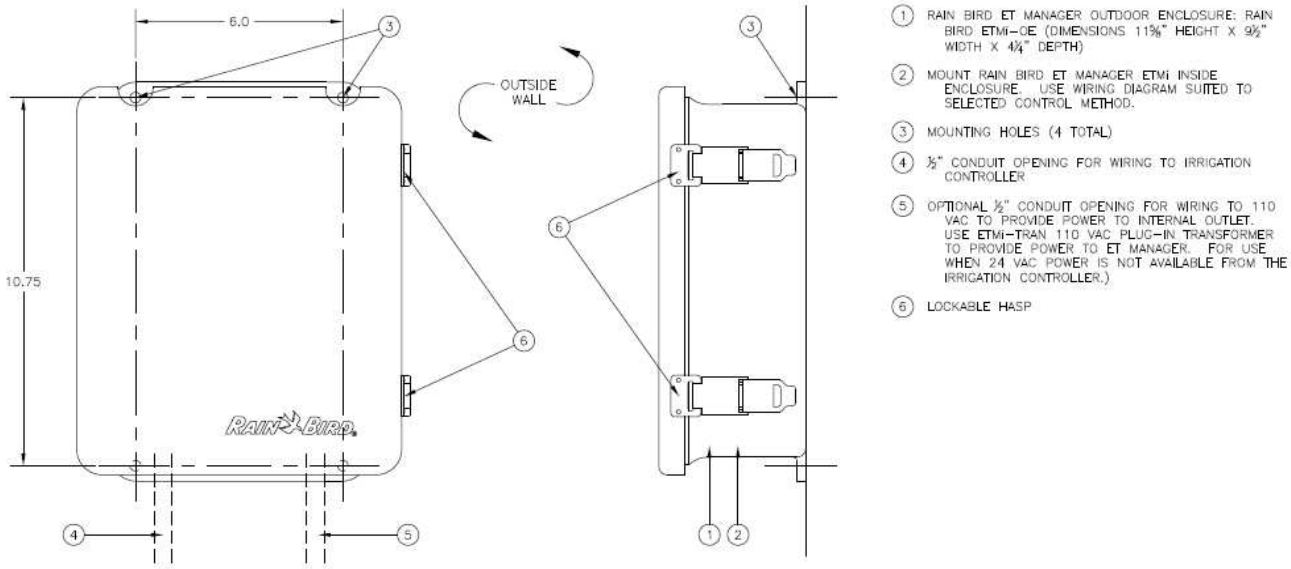
Tipping Rain Gauge-ETMi.dwg

File Name:
Tipping Rain Gauge-ETMi

Formats:
DWG – PDF – JPG – DXF

Location:
ET Manager Resource CD
http://www.rainbird.com/landscape/products/controllers/etmanager.htm

ET Manager Outdoor Enclosure


6.0
10.75
OUTSIDE WALL
RAIN BIRD
1 RAIN BIRD ET MANAGER OUTDOOR ENCLOSURE: RAIN BIRD ETMi-OE (DIMENSIONS 11⅝" HEIGHT X 9½" WIDTH X 4¼" DEPTH)
2 MOUNT RAIN BIRD ET MANAGER ETMi INSIDE ENCLOSURE. USE WIRING DIAGRAM SUITED TO SELECTED CONTROL METHOD.
3 MOUNTING HOLES (4 TOTAL)
4 ½" CONDUIT OPENING FOR WIRING TO IRRIGATION CONTROLLER
5 OPTIONAL ½" CONDUIT OPENING FOR WIRING TO 110 VAC TO PROVIDE POWER TO INTERNAL OUTLET. USE ETMi-TRAN 110 VAC PLUG-IN TRANSFORMER TO PROVIDE POWER TO ET MANAGER. FOR USE WHEN 24 VAC POWER IS NOT AVAILABLE FROM THE IRRIGATION CONTROLLER.)
6 LOCKABLE HASP

D ET MANAGER OUTDOOR ENCLOSURE N.T.S. 2-02-09

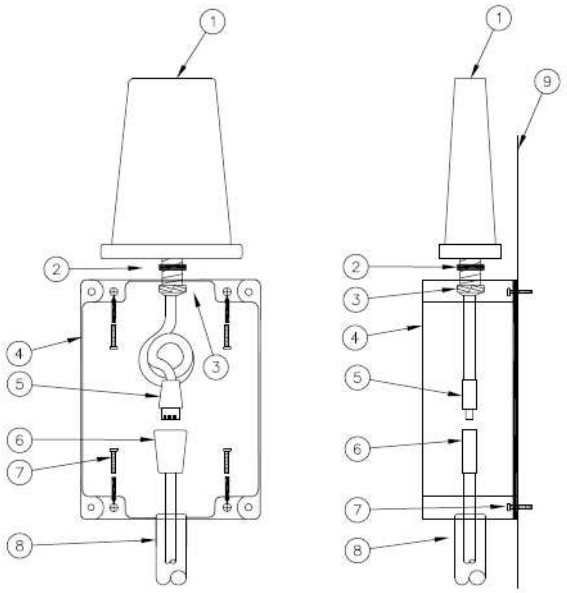
ET Manager Outdoor Enclosure.dwg

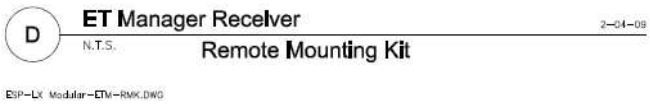
File Name:
ET Manager Outdoor Enclosure

Formats:
DWG – PDF – JPG – DXF

Location:
ET Manager Resource CD
http://www.rainbird.com/landscape/products/controllers/etmanager.htm

ET Manager Receiver Remote Mounting Kit





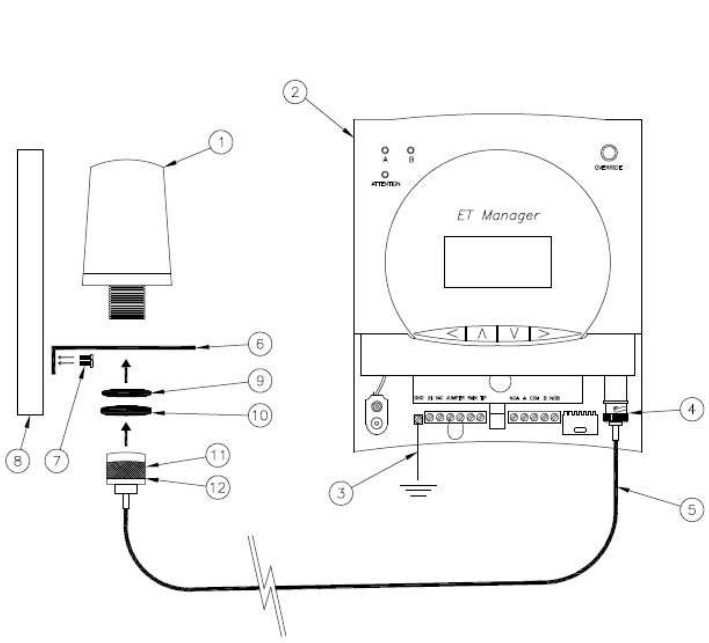
1. ET MANAGER RECEIVER (ETMR)
2. RUBBER GASKET (INCLUDED)
3. ½" CONDUIT NUT (INCLUDED)
4. JUNCTION BOX WITH COVER AND ¾" SCREWS (INCLUDED)
5. CABLE AND CONNECTOR FOR ET MANAGER RECEIVER
6. 30' EXTENSION CABLE WITH RJ45 MALE AND FEMALE CONNECTIONS (INCLUDED)
7. 1¾" #6 SHEET METAL SCREW WITH ANCHOR (1 OF 4)
8. ¾" CONDUIT (NOT INCLUDED)
9. MOUNT ETMR USING REMOTE MOUNTING KIT (ETM-RMK) ON FLAT SURFACE NO FURTHER THAN 30' AWAY FROM CONTROLLER. INSTALL SO RECEIVER IS SET VERTICALLY AS SHOWN.

File Name:
ESP-LX Modular-ETM-RMK

Formats:
DWG – PDF – JPG – DXF

Location:
ET Manager Resource CD
http://www.rainbird.com/landscape/products/controllers/etmanager.htm

ET Manager External Antenna



1. RAIN BIRD ET MANAGER EXTERNAL ANTENNA: RAIN BIRD ETMi–ANT (DIMENSIONS – HEIGHT 2½", DIAMETER 1 7/16")
2. RAIN BIRD ET MANAGER
3. SOLID BARE COPPER WIRE (#10 AWG MIN.) FROM ET MANAGER TO GROUNDING GRID. MAKE WIRE AS SHORT AND STRAIGHT AS POSSIBLE.
4. BNC EXTERNAL ANTENNA CONNECTION
5. RG8X CABLE (15 FEET INCLUDED)
6. MOUNTING BRACKET (INCLUDED, DIMENSIONS – 1¾" LENGTH X 1⅜" WIDTH X 1¼' HEIGHT). MOUNT ON EXTERIOR SURFACE OR ENCLOSURE
7. MOUNTING SCREWS (INCLUDED)
8. MOUNTING SURFACE
9. LOCK WASHER (INCLUDED)
10. HEX NUT (INCLUDED)
11. MALE 'N' CONNECTOR (INCLUDED)
12. SELF–FLUSHING SILICON SEALING TAPE TO SEAL ANTENNA CABLE CONNECTION (INCLUDED)

A ET Manager External Antenna
N.T.S. 2–02–09

ET Manager External Antenna.dwg

File Name:
ET Manager External Antenna

Formats:
DWG – PDF – JPG – DXF

Location:
ET Manager Resource CD
http://www.rainbird.com/landscape/products/controllers/etmanager.htm

APPLICATION NOTES

New Weather Reach Signal Service

Rain Bird ET Managers receive a Weather Reach Signal broadcast by a Weather Reach Signal Provider via wireless paging. This real-time weather data is used to automate landscape irrigation management. Data from one ET Weather Station can serve an unlimited number of ET Managers.

There are three types of Weather Reach Signal Providers:

1) **Public / Sponsored** – The signal is provided as a public service without an end user subscription.
2) **Commercial –** The signal is provided on a subscription basis.
3) **Private** – An entity such as a Home Owners association, parks department or university provides the signal to ET Managers under their management.

A personal computer, with the Weather Reach Server software, communicates with ET Weather Stations, stores the data, and sends the necessary information to a commercial paging provider for broadcast.

There are two options for computer system operation:

1) **Owner / Operator** – An owner operator purchases the Weather Reach Server, and all the necessary equipment to operate the system, enters into a contract with USA Mobility for paging services, and manages the system.
2) **Contract with Irrisoft** – Irrisoft is Rain Bird's ET Manager Partner and a Campbell Scientific company. Irrisoft provides signal service on a per Weather Station basis.

Setting up the Weather Reach Signal involves several steps. For detailed information call the ET Manager Hotline 1-877-351-6588 and select option 1.

Step 1: Choose a Weather Station(s)

The first step when establishing Weather Reach Signal Service is to indentify an ET Weather Station. ET Weather Stations can be new stations purchased from Rain Bird or Irrisoft, or may be existing stations or Weather Station networks. Existing stations must include an hourly measurement of solar radiation, temperature, wind, humidity, and rainfall. Whenever selecting an existing station, contact Irrisoft to verify that the Weather Station is compatible.

Expand Existing Systems

When new signal service is needed in an area, an existing signal provider may welcome the opportunity to add an ET Weather Station to expand service. Contact Irrisoft or the existing Weather Reach Signal Provider.

Step 2: Choose system operation

Option 1: Owner / Operator

To own and operate the system, the Weather Reach Server and all necessary equipment is purchased and maintained, and a paging contract is established with USA Mobility.

Materials Needed:

Item	Notes
PC	Personal computer, contact Irrisoft for system requirements.
ETM-WRSS	Weather Reach Server Software purchased and installed on the PC.
Internet Access	"Always On" Internet Access is necessary for communication with USA Mobility.
External Modem	Recommended when phone connections are used to access Weather Stations.
Weather Station Access	Set up station access to either an existing station or newly purchased station.
Paging Account	Call the ET Manager Hotline 1-877-351-6588 select option 1. Paging cost covers an unlimited number of ET Managers.

Option 2: Irrisoft Signal Services

Operating the Weather Reach Server requires time and resources. Some entities prefer to outsource technical services. Irrisoft, Rain Bird's partner for the ET Manager, can provide these services on contract, there are two options for signal services, public sponsor and private provider.

Private Weather Reach Signal Provider

The Weather Reach Signal can be broadcast solely to a private user. Some entities, such as Parks Departments, Universities, and School Districts may wish to have the Weather Reach signal broadcast solely to ET Managers under their management.

Screen shot of Sponsor message sent to ESP-LX Modular controller.

Services Provided by Irrisoft

- Operation of the Weather Reach Server
- Hourly Communication with ET Weather Stations
- Setup, maintenance and fees for USA Mobility, the commercial paging provider.

Materials Needed:

Item	Notes
Weather Station Access	Set up station access to either an existing station or newly purchased station. Obtain, and fill out a Weather Station access authorization form from Irrisoft.
Signed Contract	Contact Irrisoft 435-755-0400 for a contract.

ET Manager Rain Region

ET Managers use ET and rainfall measurements to automatically manage landscape irrigation. Weather conditions that affect evaporation (solar radiation, temperature, wind and humidity) do not vary significantly within a given region, but rainfall amounts can change within a short distance. Because rainfall is localized, ET Managers allow for one of three rainfall measurement sources:

1. **Signal** – Rainfall measurements from the weather station are included in the weather signal of the selected Weather Region.
2. **Local** – An onsite tipping bucket rain gauge is wired directly to the ET Manager.
3. **Rain Region** – Rain data from a local Rain Station is broadcast via wireless paging

Overview

The Rain Region option is available when the Weather Reach Signal Provider broadcasts data from a Rain Station. In addition to providing weather data from an ET Weather Station the Signal Provider may also access rainfall measurements from a Rain Station. Just as weather data can be broadcast from a weather station to an ET Manager, rain data can be broadcast from a Rain Station by the Signal Provider via wireless paging. The Signal Provider assigns a Rain Region number to a Rain Station. The ET Manager Rain Source setting must be programmed to the Rain Region.

Rain Stations can be strategically located to service a large number of ET Managers in an area. For example, instead of an on-site rain gauge for each controller, a housing development, business park or campus may install one Rain Station.

Weather Reach Signal Provider

The Weather Reach Signal Provider must support the rain data broadcast. Installation of a new Rain Station will need to be coordinated with the Signal Provider. Irrisoft, Inc. (435-755-0400), Rain Bird's ET Manager Partner and a Campbell Scientific Company can assist in this effort.

New Rain Region Requirements

A measurement of rain begins with a tipping bucket rain gauge. A data logger is used to record the measurement. Communication components are needed between the datalogger and the Weather Reach Server, operated by the Signal

Provider. The system requires a power source. Rain data is collected by the Weather Reach Server and broadcast to ET Managers via the same paging system used to broadcast weather information. To receive the broadcast, ET Managers must be programmed to the correct Rain Region. Once installed the system is simple and reliable. Maintenance is primarily limited to keeping the rain gauge clean.

Rain Station Location

A rain gauge should be installed in a location to catch natural rainfall. Make sure there are no obstructions such as trees, buildings or poles that would prevent rain from falling into the gauge. Avoid locations that could collect water from sprinklers or other non-rain sources. A stable fixture should be used to mount the rain gauge so wind will not shake the gauge. Protect the gauge from potential vandalism by installing it out of reach and out of sight.

Rain Station Packages

Due to the number of options, Rain Stations are customized based on site specific needs. Contact Irrisoft, Inc. (435-755-0400), Rain Bird's ET Manager Partner and a Campbell Scientific Company. Application engineers will help determine the best configuration for the project. During the discussion the following options will be considered:

- Tipping Rain Gauge
    - Model
        - Texas Electronics
            - 8"
            - 6"
        - Pronamic
    - Mounting Hardware
        - Typically mounted to a pole.
    - Cable lengths
- Data Logger
    - Several Options, depending on selected communication method.
- Communications
    - Internet
    - Radio
    - Telephone
    - Cellular IP
    - Direct Connect
    - PC to Internet
- Power Supply
    - Solar
    - AC

ET Manager™ Application Notes

Rain Bird Maxicom^2 Central Control System

The Rain Bird ET Manager (Model ETMi) can provide the Rain Bird Maxicom^2 Central Control System with ET, rainfall amounts, or a sensor interrupt based on rain, low temperature, and high wind conditions. The ET Manager receives hourly weather information broadcast by a Weather Reach Signal Provider who accesses a network of weather stations.

Maxicom^2 site hardware pulse sensor inputs recognize a momentary dry contract switch closure for each 0.01" of ET and/or Rain. These inputs are configured as a Weather Source in the Maxicom^2 software. Maxicom^2 site hardware switched sensor inputs recognize an open or closed switch condition, which can be programmed in the Maxicom^2 software to interrupt irrigation.

Choose one of the two ET Manager advanced output methods to provide sensor input to the Maxicom^2 System:

- **ET and Rain Pulse:** ET and rainfall data is input to the Maxicom^2 site hardware using a “pulse” method. A dry contact switch closure represents 0.01" of ET or Rain. The relays operate in a normally open condition.
- **ET Pulse and Weather Interrupt:** ET data is input to the Maxicom^2 site hardware using a “pulse” method. A dry contact switch closure represents 0.01” of ET. The relay operates in a normally open condition. A Weather Interrupt can be input to the Maxicom^2 site hardware using a switched contact method (open or closed). The Weather Interrupt is utilized to prevent watering if any one of the three Weather Interrupt conditions occurs: rain, freezing conditions, or high wind. The relay operates in a normally closed condition.

Maxicom^2 Site Hardware Requirements

- **ET and Rain Pulse:**
  - **Maxicom^2 Pulse Decoder input:** The ET and Rain Pulse require individual Maxicom^2 Pulse Decoders connected to individual channels on the CCU two-wire path.
  - **Maxicom^2 ESP-SITE Satellites and ESP-SAT Link-Radio Satellites input:** ESP-SITE Satellites and ESP-SAT Link-Radio Satellites can be used for either an ET or Rain input but should not be used for both ET and Rain Pulse input with the ET Manager at this time.

- **ET Pulse and Weather Interrupt:**
  - **Maxicom^2 Pulse Decoder input:** The ET Pulse requires a Maxicom^2 Pulse Decoder connected to the CCU two-wire path.

- **Maxicom^2 ESP-SITE Satellites and ESP-SAT Link-Radio Satellites input:** The ET Pulse requires Sensor Input A or B on a Maxicom^2 ESP-SITE Satellite or ESP-SAT Link-Radio Satellite.
- **Maxicom^2 Sensor Decoder input:** The Weather Interrupt requires either a Maxicom^2 Sensor Decoder connected to the CCU two-wire path.
- **Maxicom^2 ESP-SITE Satellites and ESP-SAT Link-Radio Satellites input:** The Weather Interrupt requires Sensor input A or B on a Maxicom^2 ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite.

ET Manager Wiring

- Remove the jumper on the ET Manager terminal labeled “Jumper.”

ET and Rain Pulse

- **ET Pulse:** Use a pair of wires connected to the ET Manager ET pulse output terminals, labeled NOA and A. Select the Maxicom^2 hardware input:
    - **Maxicom^2 Pulse Decoder input:** Connect to the blue and blue/white wires.
    - **Maxicom^2 ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite input:** Connect to either sensor input A or B.
- **Rain Pulse:** Use a pair of wires connected to the ET Manager ET pulse output terminals, labeled NOB and B. Select the Maxicom^2 hardware input:
    - **Maxicom^2 Pulse Decoder input:** Connect to the blue and blue/white wires.
    - **Maxicom^2 ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite input:** Connect to either sensor input A or B.

Note: The Maxicom^2 ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite currently does **not** support two weather inputs. Select either an ET or Rain input to one satellite.

ET Pulse with Weather Interrupt

- **ET Pulse:** Use a pair of wires connected to the ET Manager ET pulse output terminals, labeled NOA and A. Select the hardware input:
    - **Maxicom^2 Pulse Decoder input:** Connect to the blue and blue/white wires.
    - **Maxicom^2 ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite input:** Connect to either sensor input A or B.

- **Weather Interrupt:** Use a pair of wires connected to the ET Manager Weather Interrupt terminals, labeled COM and B. Select the hardware input:
    - **Maxicom^2 Sensor Decoder input:** Connect to the two yellow wires.

- **Maxicom^2 ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite input:** Connect to either sensor input A or B.

ET Manager System Settings

- **ET and Rain Pulse:**
  - Output Method = ET and Rain Pulse
  - Rain Source = Broadcast
  - Pulse per Minute = 10
  - ET Pulse Duration = 0.2 seconds
  - Rain Pulse Duration = 0.2 seconds

- **ET Pulse with Weather Interrupt:**
  - Output Method = ET Pulse with Interrupt
  - Rain Source = As needed
  - Pulse per Minute = 10
  - ET Pulse Duration = 0.2 seconds
  - Weather Interrupt = Wind, Temperature and Rain as needed

Maxicom^2 System Software Setup

ET and Rain Pulse

CCU Properties

- **CCU Two-Wire / Pulse Decoder:**
  - **ET Pulse input:** Select Channel Properties on an unused channel.
    Device Category = Sensor/Decoder
    Device Type = Site ET Collector (SETC)
    Device Name = ET Manager
    In/Pulse = 0.01 (default)
  - **Rain Pulse input:** Select Channel Properties on an unused channel.
    Device Category = Sensor/Decoder
    Device Type = Site Rain Collector (SRC)
    Device Name = Rain Can
    In/Pulse = 0.01 (default)

- **ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite:**
  - **ET Pulse input:** Select Channel Properties on a Satellite channel.
    Device Category = Satellite with Sensor Input(s)
    Select Sensor Input A or B Properties
    Device Type = ET Gauge
    Device Name = ET Manager
    In/Pulse = 0.01 (default)
  - **Rain Pulse input:** Select Channel Properties on a Satellite channel.
    Device Category = Satellite with Sensor Input(s)
    Select Sensor Input A or B Properties

Device Type Site Rain Collector (SRC)
Device Name = ET Manager
In/Pulse = 0.01 (default)

- **Note:** Both ET Pulse and Rain Pulse inputs should **not** be used on the same CCU Channel.

ET Pulse and Weather Interrupt

CCU Properties

- **CCU Two-Wire / Pulse Decoder:**
  - **ET Pulse input:** Select Channel Properties on an unused channel.
    Device Category = Sensor/Decoder
    Device Type = Site ET Collector (SETC)
    Device Name = ET Manager
    In/Pulse = 0.01 (default)

- **ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite:**
  - **ET Pulse input:** Select Channel Properties on a Satellite channel.
    Device Category = Satellite with Sensor Input(s)
    Select Sensor Input A or B Properties
    Device Type = ET Gauge
    Device Name = ET Manager
    In/Pulse = 0.01 (default)

- **CCU Two-Wire / Sensor Decoder:**
  - **Weather Interrupt input:** Select Channel Properties on an unused channel.
    Device Category = Sensor/Decoder
    Device Type = Wind Limit Sensor
    Device Name = ET Manager

- **ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite:**
  - **Weather Interrupt input:** Select Channel Properties on a Satellite channel.
    Device Category = Satellite with Sensor Input(s)
    Select Sensor Input A or B Properties
    Device Type = Wind Limit Sensor
    Device Name = ET Manager

Maxicom^2 Weather Source

- **ET:** Configure a new Weather Source and select the CCU Based - ET Gauge as the type. Identify the Site and CCU Channel location of the ET Pulse sensor input.

- **Rain:** Configure a new Weather Source and select the CCU Based - Site Rain Can as the type. Identify the Site and CCU Channel location of the Rain Pulse sensor input.

Maxicom^2 Schedules

- **ET Sensitized Schedules:** The ET Manager can be used as a Weather Source (ET and/or Rainfall) for any Site(s). ET Sensitized Schedules on these Sites can utilize the ET Manager ET and/or Rainfall for automatic runtime adjustments.

- **Rain Watch Schedules:** The ET Manager can be used as a rainfall source for Site Rain Watch operations. Please see the Maxicom^2 User Manual or Schedule Templates for information about creating Rain Watch Schedules.

- **Weather Interrupt Schedules:** The ET Manager Weather Interrupt input can be used by a Sensor Schedule to Interrupt or Cancel irrigation schedules when pre-defined rain, wind or temperature thresholds occur. Please see the Maxicom^2 User Manual or Schedule Templates for information about creating Sensor Interrupt or Cancel Schedules.

P-500-16

ET Manager™ Application Notes

Rain Bird MDC Decoder-based Control System

The Rain Bird ET Manager (Model ETMi) can enhance the control of the Rain Bird MDC Controller by managing the frequency of watering based on ET and measured rainfall amounts. The ET Manager receives hourly weather information broadcast by a Weather Reach Signal Provider who accesses a network of weather stations.

Purpose

The ET Manager controls the frequency of watering by interrupting or allowing watering as needed. This control method may be adapted to the MDC. The ET Manager shall interrupt watering until needed by controlling the Rain Sensor input on the MDC.

Settings

1. ET Manager
   - Valve Group A will control the watering days of the MDC. Use the Enable Output method to manage watering frequency.
   - The Irrigation Amount of Valve Group B MUST be set to 0.
   - Remove Jumper from the “Jumper” terminal (located next to the 24VAC terminal).

2. MDC Controller
   - Set “RAIN SENSOR” mode to “ACTIVE”.
   - Set “SWITCH SETTINGS” mode to “Normally open” (Open switch allows watering, closed switch prevents watering.
     - **Note**: A “Normally Closed” sensor “Switch Setting” can be used when the MDC is connected using the “Normally Closed” option shown in the wiring diagram. (ET Manager “A” terminal and left “Jumper” terminal)
   - Program an Output Decoder as MV or Booster
   - Set MV or Booster Output Decoder parameter as shown in following table.

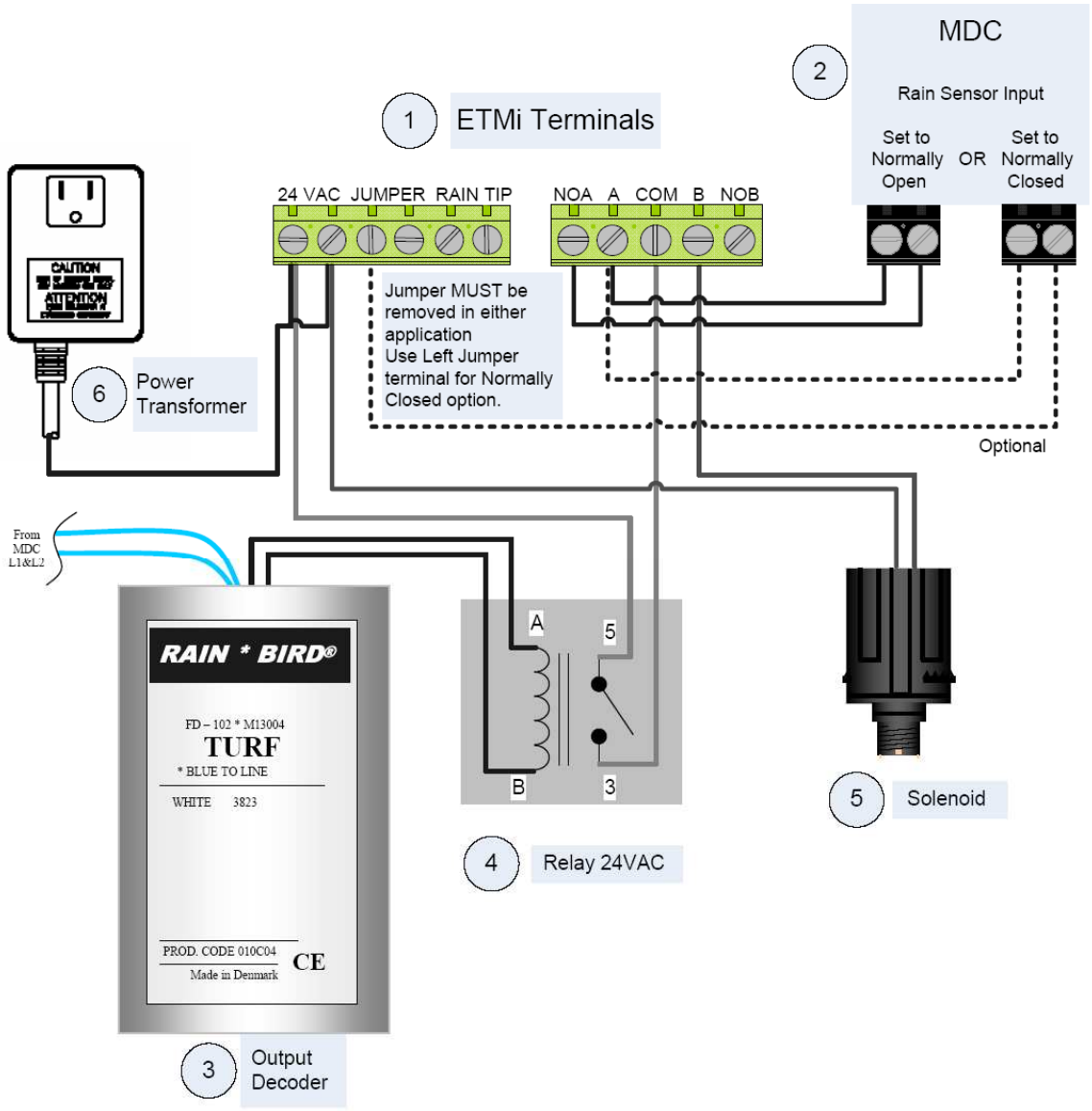
Switch settings	49F360
Address	Address located on decoder label
ON (delay)	0
OFF (delay)	0

Installation

1. Material Required

Item	Description	Part Number	Notes
1	ET Manager	Rain Bird ETMi	Standard model.
2	MDC Controller	Rain Bird MDC	Standard Model
3	Output Decoder	Rain Bird FD-102	The ET Manager needs feedback from the MDC that watering has occurred. Set this Output Decoder as MV or Booster Pump. It should come on when a cycle starts.
4	Relay 24 VAC	Tyco Electronics Relay K10P-11A15-24 with Socket Base 27E895	The Output Decoder activates the relay which in turn activates the solenoid.
5	Solenoid	Rain Bird 208588-02	The ETMi feedback sensor needs more current than the Output Decoder uses. The solenoid provides a LOAD the ET Manager will recognize. The plunger can be removed to keep it quiet. Or As an alternative a 10 Watt 220 Ohm Resistor can be used in place of the solenoid. Note: It does get hot.
6	Power Transformer (25.5 VAC 1 Amp.)	Rain Bird 635640 or ETMi-TRAN	Use this transformer to power the ETMi and provide power for the solenoid. Most 24VAC transformers can be used.
7	Enclosure	Rain Bird ETMI-OE	The components may also be installed in another cabinet. When using the ETMI-OE the Decoder needs to be installed in the MDC cabinet.
8	Hook Up Wire	AWG 18	As required

2. Wiring Diagram



Verification Test

Once connected the following tests should be performed:

1. Adjust the Moisture Level in the ET Manager greater than 0 to interrupt watering, the Valve Group A light will be Red. Activate a valve manually with the MDC, the valve should not come on.
2. Adjust the Moisture Level in the ET Manager less than 0 to enable watering, the Valve Group A light will be Green. Temporarily set the Automatic Window range to include the current time. Return to the Home screen. Wait for the status line to display “Automatic Window Open.” Activate a valve manually with the MDC, the valve should come on. Watch the soil Moisture Level on the home screen, when watering is detected the graph will be adjusted. The date and time of the detected watering will also be added to the “A” Irrigation Log.
3. Once the test is complete do the following:
    a. Clear the Logs
    b. Reset the Automatic Window to match the MDC program settings.
    c. Set the Valve Group A Irrigation Amount based on the MDC program and site conditions.
    d. Adjust the Moisture Level as needed.

ET Manager™ Application Notes

ET Manager (model ETMi) with a Single Common Wire

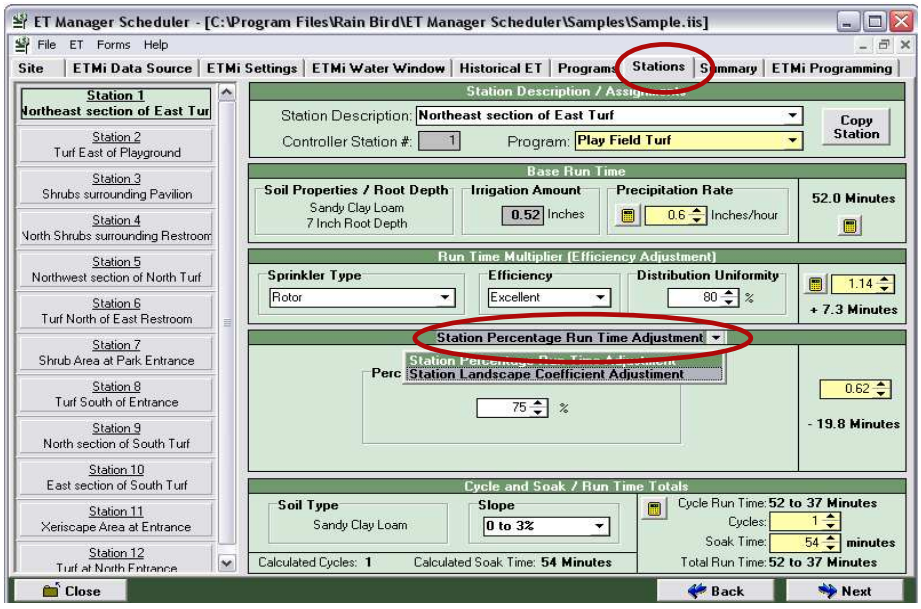
The ET Manager (model ETMi) controls irrigation by interrupting or enabling the valve common wire which runs from the sprinkler controller, through the ET Manager, to the valves. The ET Manager determines what day is the right day for watering according to the user defined Irrigation Amount setting, Landscape Adjustment setting, and current ET and rainfall. The end user sets the Irrigation Amount in the ET Manager and the valve run-times in the sprinkler controller. Typically these run times are set to apply the same amount of water as the Irrigation Amount setting. However, the user can set the run times to apply more or less water than the Irrigation Amount, thus giving the ability to make adjustments to meet the specific needs of each zone.

The ET Manager supports two "Valve Groups" using separate common wires, each of which should be connected to valves with similar plant material. Each valve group can be set to a unique Irrigation Amount setting for management of plants with different rooting depths or soil types and a unique landscape adjustment percentage setting for management of plants with varying water needs. The end result is that Valve Group A and B can have different watering frequencies. When a new sprinkler system is being installed, and control on Valve Group A and B is desired, then a second common wire may be installed. When the ET Manager is being installed on a site with an existing sprinkler system that has only one field common wire, there are 4 options to meet the water needs of the different plant types:

1. Use Valve Group A only:

The ET Manager can successfully water a variety of plant materials and microclimates using only one valve group. This is done by adjusting the run times set in the sprinkler controller. Keep in mind that the ET Manager is simply determining what day is the right day for watering. If a zone needs more or less water, increasing or decreasing the valve run time will adjust the amount of water applied to the landscape.

For example; If your shrub beds need half as much water as your turf, then apply half as much water to your shrubs as your turf, rather than watering the shrubs half as often. The end result is that both shrubs and turf will water on the same day but the amount of water applied to shrubs is half that applied to the turf.



To determine the appropriate run time for

stations with different plant material, you may use the Station Landscape Coefficient Adjustment for each station in the ET Manager Scheduler software.

2. **Check for an extra wire:** Sprinkler systems are often installed with spare wires. There may be an extra wire already run to the valve boxes and controller which could be used as a second field common wire. Those valves that are to be controlled by the other Valve Group should be wired to this second field common.

3. **Install a Valve Group Switch:** Irrisoft, Inc., Rain Bird's ET Manager partner, offers a Valve Group Switch (Model WR-VGS) that provides control of two valve groups for sprinkler systems with only one common wire.

   The Valve Group Switch alternates the field common between Valve Groups A and B. The switch is controlled by the sprinkler controller. Before watering begins, a station on the sprinkler controller must activate to "set" the switch to the corresponding Valve Group A or B. The ET Manager then enables or interrupts the common.

   Requirements for using the Valve Group Switch:

   - All valves must be connected to the same common.
   - Sprinkler controller must trigger the Valve Group Switch using ONE of the following options:
     - Two unused stations
     - An unused programmable Master Valve and one unused station.
   - The Trigger Station(s) and Master Valve must not be connected to a valve.
   - Sprinkler controllers with multiple programs must be capable of stacking programs so they do not overlap, OR program start times must be set so that cycles do not overlap.
   - Must be able to water entire landscape in a single night. (ET Manager Enable A then B method cannot be used.)
   - Group A and B Trigger Stations must be the first station to run in their respective programs.
   - Systems using a sprinkler controller to activate a pump are NOT compatible with the Valve Group Switch.

   Contact Irrisoft, Inc. for more information: phone: (435) 755-0400, fax (435) 755-0415, www.irrisoft.net, sales@irrisoft.net

4. **Use the Daily Window:** The Daily Window is a feature in the ET Manager which allows Watering every day and is NOT based on ET control. When the Daily Window "opens" it enables or allows watering of any valve. Stations with differing water needs could be programmed to operate during the daily window on a user-set schedule. The Daily Window operates outside the Automatic Window; see ET Manager Installation and Operation Manual for programming.